

Appl. No. 09/909,486
Amdt. Dated Oct. 1, 2003
Reply to Office Action of July 2, 2003

REMARKS

In the specification, the existing abstract was replaced to adhere to the 150 word limit. Despite this amendment, no new matter has been added. Claims 1-10 remain pending in this application.

INVENTION SYNOPSIS

The present invention is directed to a nonwoven web comprising a plurality of apertures each having a hole size greater than 2 mm^2 , and a hole aspect ratio less than 6, said nonwoven web having an open area greater than 15% and being capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm.

A nonwoven web comprising a plurality of apertures formed by application of a tensioning force, said apertures coincident with a plurality of weakened, melt-stabilized locations, said apertures having a circumferential edge, a portion of said circumferential edge being defined by a remnant of said melt-stabilized locations, said nonwoven web capable of extension in the cross machine direction of at least 70% at a loading of 10 g/cm.

REJECTIONS UNDER 35 USC § 103(a)

Claims 7, 9, and 10 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,369,858 to Gilmore et al. (hereafter "Gilmore"). In support of this rejection, the Office states that Gilmore discloses an apertured nonwoven fabric prepared from melt blown microfibers for use as a fluid transmitting topsheet for disposable diapers and sanitary napkins. The Office further states that the apertures may be a plurality of different sizes and have a circumferential edge. The Office refers to Table 2 to support the assertions that "the basis weight of the fabric is between 20 and 90 grams per square yard (27 to 107 gsm)" and that "the fabric has an elongation of 60-124% in the cross machine direction following the ASTM D168264, the One-Inch Cut strip Test." While the Office acknowledges that Gilmore does not recite the limitation "capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm," the Office argues that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as

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extension under different loads through routine experimentation in the absence of a showing of criticality in the claimed extension. Specifically, the Office states, "In view of Gilmore's teaching to use a fabric with an elongation of 60-124% in the cross machine direction following the ASTM D168264, the One-Inch Cut strip Test, one of ordinary skill in the art would have been motivated to use a fabric capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm because it would have a greater resistance to breaking or tearing." Applicants traverse this rejection.

Gilmore discloses a process for producing a nonwoven composite fabric having apertures of two different sizes (col. 8, lines 23-25). The nonwoven fabric in Gilmore is a web comprising a first layer selected from a web of textile fibers and a net of polymeric filaments and a second layer of a web or melt blown microfiber (Col. 7, lines 38-43). Gilmore discloses the use of small diameter high velocity jet streams of water to provide fiber entanglement and to create apertures of a first size in the nonwoven fabric. Gilmore discloses use of second jet streams to form apertures of a second size in the fabric. (Col. 8, lines 23-42).

Applicants respectfully submit that the Office has failed to make a prima facie case for obviousness relative to claims 7, 9, and 10. As presented below, Gilmore fails to teach or suggest all of the limitations within claims 7, 9, and 10. To establish a prima facie case of obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). Specifically, Gilmore fails to teach or suggest the limitations "said nonwoven web capable of extension in the cross machine direction of at least 70% at a loading of 10g/cm" and "a portion of said circumferential edge being defined by a remnant of said melt-stabilized locations."

First, the Office provides that "Gilmore's teaching to use a fabric with an elongation of 60-124%" serves as a basis for obviousness. Gilmore, however, does not teach a use of a fabric. Rather, Gilmore teaches a process for producing a nonwoven composite fabric. The Office provides no evidence that justifies the use of a fabric with Applicants' extension parameters let alone how such a fabric can be used in Gilmore which itself is a process for producing, rather than using, a nonwoven composite fabric.

Second, the Office asserts, based on Gilmore's teachings within Table 2, that "one of ordinary skill in the art would have been motivated to use a fabric capable of at least 70%

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extension in the cross machine direction at a loading of 10 g/cm because it would have a greater resistance to breaking or tearing." Table 2 discloses a strip tensile strength (i.e., the breaking load) of a sample recorded in grams per inch. Table 2 also discloses a strip elongation which is the percent increase in fabric length observed at the break. Both strip tensile strength and strip elongation are recorded while following ASTM D 1682-64, the One Inch Cut Strip Test. Gilmore teaches loadings far in excess of 10 g/cm to achieve elongations equivalent to Applicants' claim limitation. For instance, Example 8 in Table 2 of Gilmore discloses a strip tensile of 977 g/in (approximately 385 g/cm), in the cross direction, to achieve a strip elongation of 69%. Applicants' claim limitation reads as a "nonwoven web capable of extension in the cross machine direction of at least 70% at a loading of 10 g/cm." Gilmore requires a loading 30-fold greater than that of Applicants' claimed invention to achieve similar elongations of approximately 70%. The disclosure of Table 2 does not teach or suggest Applicants' limitation.

Furthermore, the Office mischaracterizes the motivation that one skilled in the art would have in order to use a fabric capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm. The Office offers that the motivation is that the fabric "would have a greater resistance to breaking or tearing." Gilmore discloses nonwovens that have strip elongation of between 60-124% at loading of 170 g/in to in excess of 1000 g/in. Applicants fail to see how the nonwovens of Gilmore (with strip elongations of 60-124% with 170-1000 g/in) would have a greater resistance to breaking or tearing if exhibiting Applicants' claimed limitation of extension in the cross machine direction of at least 70% at a loading of only 10 g/cm.

Third, Gilmore fails to teach Applicants' limitation of "said apertures having a circumferential edge, a portion of said circumferential edge being defined by a remnant of said melt-stabilized locations." Applicant defines "melt-stabilized" as "portions of a nonwoven web which have been subjected to localized heating and/or localized pressure to substantially consolidate the fibers of the nonwoven web into a stabilized film-like form." See, page 5, lines 34-36. As a result of this definition, Gilmore must teach or suggest apertures having a circumferential edge, a portion of said circumferential edge being defined by a remnant of a nonwoven web which have been subjected to localized heating and/or localized pressure to substantially consolidate the fibers of the nonwoven web into a stabilized film-like form. Gilmore does not teach or suggest such melt-stabilized locations.

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In light of the arguments presented above, Applicants respectfully request withdrawal of the rejection as it is improper.

Claims "what ever" stand rejected under 35 USC § 103(a) as being unpatentable over Gilmore in view of U.S. Patent No. 4,892,528 to Suzuki et al. (hereafter "Suzuki"). Since the rejected claims were not specified, Applicants shall presume that the rejection pertains to all of the pending claims. The Office states that Gilmore discloses all the limitations of the instant claimed invention except for the hole size, hole aspect ratio, and the open area. Suzuki, as the Office asserts, discloses a nonwoven topsheet for a diaper comprising apertures each being circular and having an area of 7 to 50 mm², a diameter of 2 to 20 mm, an array pitch of 6 to 20 mm, and a total aperture ratio with respect to surface area of 15 to 70% (open area). The Office argues that it would have been obvious to one of ordinary skill in the art to use the aperture size and open area ratio of Suzuki in Gilmore because it would allow body fluids to pass freely therethrough without soaking the surface of the non-apertured zone.

Suzuki discloses a disposable diaper comprising, in relevant part, a topsheet maintained by fibers entangled together in a configuration of nonwoven fabric and provided with a plurality of regularly arranged apertures. The apertures are preferably each being circular and having an area of 7 to 50 mm², a diameter of 2 to 10 mm, an array pitch of 6 to 20 mm, and a total aperture ratio with respect to all the surface area of 15 to 70%. Assuming arguendo, the combination of Gilmore with the elements of Suzuki would result in a nonwoven fabric as a web comprising a first layer selected from a web of textile fibers and a net of polymeric filaments, a second layer of a web or melt blown microfiber, and two sets of apertures with a first size and a second size. The apertures would further comprise the preferred characteristics as disclosed in Suzuki. Even with such a combination, Applicants' claimed limitations are not met. As a result, Applicants traverse this rejection.

With regard to Claim 1, Gilmore and Suzuki fail to teach or suggest a nonwoven "capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm." Suzuki is silent regarding extensibility. As discussed more fully above, the strip tensile strength and strip elongation of Gilmore neither disclose nor teach or suggest Applicants' claim limitation. As a result, Applicants' Claim 1 is nonobvious in light of the combined teaching of Gilmore and Suzuki.

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With regard to Claim 7, Gilmore and Suzuki fail to teach or suggest a nonwoven "capable of at least 70% extension in the cross machine direction at a loading of 10 g/cm" as discussed in the preceding paragraph. Furthermore, Gilmore and Suzuki fail to teach or suggest Applicants' limitation, "said apertures having a circumferential edge, a portion of said circumferential edge being defined by a remnant of said melt-stabilized locations." As discussed more fully above, Gilmore fails to disclose a remnant of melt-stabilized locations. Suzuki also fails to disclose such a remnant. In light of the arguments, Applicants' Claim 7 is nonobvious in light of the combined teaching of Gilmore and Suzuki.

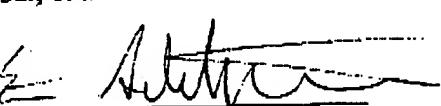
Since independent Claims 1 and 7 are nonobvious in light of the reasoning above, Claims 2-6 and Claims 8-10 depending, respectively, therefrom are also nonobvious. *In re Fine*, 837 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

CONCLUSION

Based on the foregoing reasons, Applicants respectfully submit that the Office has failed to make the case for the §103 rejections, and, therefore, the rejections are improper. Reconsideration and withdrawal of the rejections are respectfully requested. Applicants respectfully request allowance of each of the pending claims in the next Office Action.

Respectfully Submitted,
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Date: October 1, 2003

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